UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/590,613	06/08/2000	Yu-Hung Kao	TI-29099	1311

23494 7590 06/17/2003

TEXAS INSTRUMENTS INCORPORATED
P O BOX 655474, M/S 3999
DALLAS, TX 75265

EXAMINER	
ARMSTRONG, ANGELA A	
ART UNIT	PAPER NUMBER
2654	10

DATE MAILED: 06/17/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

PTO-90C (Rev. 07-01)

UNITED STATES PATENT AND TRADEMARK OFFICE

Commissioner for Patents
United States Patent and Trademark Office
P.O. Box 1450
Alexandria, VA 22313-1450
www.uspto.gov

MAILED

JUN 1 7 2003

Technology Center 2600

BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

Paper No. 10

Application Number: 09/590,613
Filing Date: June 08, 2000
Appellant(s): KAO, YU-HUNG

Robert Troike
Reg. No. 24,183
For Appellant

EXAMINER'S ANSWER

This is in response to the appeal brief filed April 4, 2003.

(1) Real Party in Interest

A statement identifying the real party in interest is contained in the brief.

(2) Related Appeals and Interferences

A statement identifying the related appeals and interferences, which will directly affect or be directly affected by or have a bearing on the decision in the pending appeal is contained in the brief.

(3) Status of Claims

The statement of the status of the claims contained in the brief is correct.

(4) Status of Amendments After Final

The appellant's statement of the status of amendments after final rejection contained in the brief is correct.

(5) Summary of Invention

The summary of invention contained in the brief is correct.

(6) Issues

The appellant's statement of the issues in the brief is correct.

(7) Grouping of Claims

The rejection of claims 1-13 stand or fall together because although appellant's brief include a statement that this grouping of claims does not stand or fall together, the brief does not include reasons in support thereof. See 37 CFR 1.192(c)(7).

(8) Claims Appealed

The copy of the appealed claims contained in the Appendix to the brief is correct.

(9) Prior Art of Record

5,835,888	KANEVSKY ET AL	11-1998
6,230,131	KUHN ET AL	05-2001
6,148,283	DAS	11-2000

(10) Grounds of Rejection

The following ground(s) of rejection are applicable to the appealed claims:

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kanevsky et al (US Patent No. 5,835,888), hereinafter referred to as Kanevsky, in view of Kuhn et al (US Patent No. 6,230,131), hereinafter referred to as Kuhn.

Kanevsky et al teaches a statistical language model for very large vocabularies of speech recognition systems for inflected languages, in which the model is constructed by splitting words into stems, prefixes and endings.

Regarding claims 1 and 10, at col. 4, lines 14-50, Kanevsky discloses that the system comprises textual data in a machine readable form which can be a large corpus of text, and a vocabulary, such as a pronunciation dictionary (col. 4, line 15-17; col. 4, line 65 continuing to col. 5, line 8), which reads on "alphabetized text". At col. 4, line 64 continuing to col. 5, line

21, Kanevsky discloses that words are split into stems and endings in accordance with dictionary information, and for each word in the dictionary. The vocabulary is used to create sub-vocabularies of components that comprise stems, endings and prefixes. The textual data and the vocabulary components are used to generate language model statistics, that comprise various sets of statistics: such as stem statistics (trigrams, bigrams, unigrams of a stream of stems that are produced from a stream of words by cutting prefixes and endings); stem/ending and/or prefix/stem/ending n-grams, which reads on "alphabetized text and corresponding phones," since the prefixes, endings and stems are groups or sets phones or phonemes the are combined to form the words.

Additionally, at col. 3, lines 37-43, Kanevsky discloses that for a given stem S, the decoder produces a list of possible endings E1, E2, E3, . . . , which can be used as the next "word" and that the table of stems and allowed endings contains lists of all endings that can follow a given stem, which reads on "overlapping characters with previous entry are prefix delta encoded", since instead of storing entire words in the dictionary/vocabulary, the system uses the a shortcut notation of maintaining the possible endings associated with a given stem for concatenation to form the several possible words.

Kanevsky does not specifically teach that the dictionary includes a rule set to convert text to phones for text not in the dictionary. However, text to phoneme conversion via implementation of a rule set was well known in the art.

In a similar field of endeavor, Kuhn discloses a method for generating spelling-to pronunciation decision tree, in which decision trees are used to store a series of yes-no questions (which reads on the "rule set") that can be used to convert spelled word letter sequences into

pronunciations (abstract; col. 2, lines 10-23)), for use in a speech recognition system to allow the user to add additional words to the recognition dictionary (col. 1, lines 49-55), which reads on "convert text to phones for text not in the dictionary." Kuhn teaches that implementation of the method allows the user to add words to the recognition dictionary without having to understand the nuances of building a phonetic transcription (col. 1, lines 49-55).

Therefore, it would have been obvious to one of ordinary skill at the time of the invention to modify the system of Kanevsky to implement a method for converting spelled word letter sequences into pronunciations, for use in a speech recognition system to allow the user to add additional words to the recognition dictionary, as taught by Kuhn, for the purpose of allowing the user to add words to the recognition dictionary without having to understand the nuances of building a phonetic transcription, as suggested by Kuhn.

Claims 2-4, 9, and 11-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kanevsky in view of Kuhn, as applied to claims 1 and 10 above, and further in view of Das (US Patent No. 6,148,283).

Regarding claims 2 and 11, Kanevsky and Kuhn teach everything as claimed in claims 1 and 10.

Kanevsky does not specifically teach error encoding of the entries different from the rule set. However, utilizing an error signal in a coding scheme is well known in the art.

In a similar field of endeavor, Das teaches a system for vector quantization, which utilizes error vectors in the coding scheme. At col. 7, lines 1-4 and col. 9, lines 51-67, Das

teaches that the difference between a target speech vector and an input speech vector forms an error vector, which represents the distortion between an input and output of the coding system, which reads on "an error encoded set for those entries different from the rule set wherein the entry only contains the difference with the rule set predictions", since the coding of the error vector exploits the differences in pronunciation between an original speech data set and a target speech data set.

Therefore, it would have been obvious to one of ordinary skill at the time of the invention to modify the system of Kanevsky to utilize an error signal in a coding scheme, as taught by Das, for the purpose of providing an efficient means for implementing a coding scheme.

Regarding claims 3 and 12, Kanevsky, Kuhn and Das teach everything as claimed in claims 2 and 11. Additionally, at col. 4, line 64 continuing to col. 5, line 21 Kanevsky discloses that for a given stem S, the decoder produces a list of endings E1, E2, E3, . . . , which can be used as the next "word" and that the table of stems and allowed endings contains lists of all endings that can follow a given stem, which reads on "encoded set is prefix data encoded," since instead of storing entire words in the dictionary/vocabulary, the system uses the a shortcut notation of maintaining the possible endings associated with a given stem for concatenation to form the several possible words.

Regarding claims 4 and 13, Kanevsky, Kuhn and Das teach everything as claimed in claims 3 and 12. Additionally, at col. 3, lines 44-45, Kanevsky discloses stems will always be followed by the symbol "<" and endings preceded by the symbol ">", which reads on "delimiter character between each entry."

Regarding claim 9, Kanevsky discloses that the invention relates to speech recognition systems for inflected languages, at col. 1, lines 5-6, which read on "a speech recognizer." At col. 4, lines 15-16, Kanevsky discloses that the system comprises textual data in a machine-readable form, which reads on "a processor," since the system provides the data in a machine-readable form and the system performs a means of speech recognition, the system necessarily requires or implements a "processor."

Additionally, at col. 4, lines 14-50, Kanevsky discloses that the system comprises textual data in a machine readable form which can be a large corpus of text, and a vocabulary, such as a pronunciation dictionary (col. 4, line 15-17; col. 4, line 65 continuing to col. 5, line 8), which reads on "alphabetized text". At col. 4, line 64 continuing to col. 5, line 21, Kanevsky discloses that words are split into stems and endings in accordance with dictionary information, and for each word in the dictionary. The vocabulary is used to create sub-vocabularies of components that comprise stems, endings and prefixes. The textual data and the vocabulary components are used to generate language model statistics, that comprise various sets of statistics: such as stem statistics (trigrams, bigrams, unigrams of a stream of stems that are produced from a stream of words by cutting prefixes and endings); stem/ending and/or prefix/stem/ending n-grams, which reads on "alphabetized text and corresponding phones," since the prefixes, endings and stems are groups or sets phones or phonemes the are combined to form the words.

Additionally, at col. 3, lines 37-43, Kanevsky discloses that for a given stem S, the decoder produces a list of possible endings E1, E2, E3, . . . , which can be used as the next "word" and that the table of stems and allowed endings contains lists of all endings that can follow a given stem, which reads on "overlapping characters with previous entry are prefix delta

encoded", since instead of storing entire words in the dictionary/vocabulary, the system uses the a shortcut notation of maintaining the possible endings associated with a given stem for concatenation to form the several possible words.

Kanevsky does not specifically teach that the dictionary includes a rule set to convert text to phones for text not in the dictionary. However, text to phoneme conversion via implementation of a rule set was well known in the art.

In a similar field of endeavor, Kuhn discloses a method for generating spelling-to pronunciation decision tree, in which decision trees are used to store a series of yes-no questions (which reads on the "rule set") that can be used to convert spelled word letter sequences into pronunciations (abstract; col. 2, lines 10-23)), for use in a speech recognition system to allow the user to add additional words to the recognition dictionary (col. 1, lines 49-55), which reads on "convert text to phones for text not in the dictionary." Kuhn teaches that implementation of the method allows the user to add words to the recognition dictionary without having to understand the nuances of building a phonetic transcription (col. 1, lines 49-55).

Therefore, it would have been obvious to one of ordinary skill at the time of the invention to modify the system of Kanevsky to implement a method for converting spelled word letter sequences into pronunciations, for use in a speech recognition system to allow the user to add additional words to the recognition dictionary, as taught by Kuhn, for the purpose of allowing the user to add words to the recognition dictionary without having to understand the nuances of building a phonetic transcription, as suggested by Kuhn.

Kanevsky does not specifically teach error encoding of the entries different from the rule set. However, utilizing an error signal in a coding scheme is well known in the art.

In a similar field of endeavor, Das teaches a system for vector quantization, which utilizes error vectors in the coding scheme. At col. 7, lines 1-4 and col. 9, lines 51-67, Das teaches that the difference between a target speech vector and an input speech vector forms an error vector, which represents the distortion between an input and output of the coding system, which reads on "an error encoded set for those entries different from the rule set wherein the entry only contains the difference with the rule set predictions", since the coding of the error vector exploits the difference in pronunciations between an original speech data set or input of the coding system and a target speech data set or output of the coding system.

Therefore, it would have been obvious to one of ordinary skill at the time of the invention to modify the system of Kanevsky to utilize an error signal in a coding scheme, as taught by Das, for the purpose of providing an efficient means for implementing a coding scheme.

Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kuhn (US Patent No. 6,230,131) in view of Das (US Patent No. 6,148,283).

Kuhn discloses a method for generating to-to pronunciation decision tree, which decision trees are used to store a series of yes-no questions (which reads on the "rule set") that can be used to convert spelled word letter sequences into pronunciations (abstract; col. 2, lines 10-23), for use in a speech recognition system to allow the user to add additional words to the recognition dictionary (col. 1, lines 49-55), which reads on "convert text to phones for text not in the dictionary."

Kanevsky does not specifically teach error encoding of the entries different from the rule set. However, utilizing an error signal in a coding scheme is well known in the art.

In a similar field of endeavor, Das teaches a system for vector quantization, which utilizes error vectors in the coding scheme. At col. 7, lines 1-4 and col. 9, lines 51-67, Das teaches that the difference between a target speech vector and an input speech vector forms an error vector, which represents the distortion between an input and output of the coding system, which reads on "an error encoded set for those entries different from the rule set wherein the entry only contains the difference with the rule set predictions", since the coding of the error vector exploits the difference in pronunciations between an original speech data signal or input of the coder and a target speech data signal after coding.

Therefore, it would have been obvious to one of ordinary skill at the time of the invention to modify the system of Kanevsky to utilize an error signal in a coding scheme, as taught by Das, for the purpose of providing an efficient means for implementing a coding scheme.

Claims 6-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kuhn et al (US Patent No. 6,230,131) in view of Das (US Patent No. 6,148,283), as applied to claim 5 above, and in further view of Kanevsky (US Patent No. 5,835,888).

Regarding claim 6, Kuhn and Das teach everything as claimed in claim 5. Kuhn and Das do not specifically teach prefix delta encoding.

In a similar field of endeavor, Kanevsky et al teaches a statistical language model for very large vocabularies, in which the language model is constructed by splitting words into stems, prefixes and endings. Specifically, at col. 3, lines 37-43, Kanevsky discloses that for a

given stem S, the decoder produces a list of possible endings E1, E2, E3, . . . , which can be used as the next "word" and that the table of stems and allowed endings contains lists of all endings that can follow a given stem, which reads on "overlapping characters with previous entry are prefix delta encoded", since instead of storing entire words in the dictionary/vocabulary, the system uses the a shortcut notation of maintaining the possible endings associated with a given stem for concatenation to form the several possible words.

Therefore, it would have been obvious to one of ordinary skill at the time of the invention to modify the system of Kuhn to implement prefix encoding as taught by Kanevsky, for implementation in speech recognition systems for inflected languages, which have very large vocabularies.

Regarding claim 7, Kuhn and Das do not specifically teach a delimiter character between each entry. However, implementation of delimiters within portions of text or data is well known in the art.

Kanevsky et al teaches a statistical language model for very large vocabularies, in which the language model is constructed by splitting words into stems, prefixes and endings. Specifically, at col. 3, lines 44-45, Kanevsky discloses stems will always be followed by the symbol "<" and endings preceded by the symbol ">", which reads on "delimiter character between each entry."

Therefore, it would have been obvious to one of ordinary skill at the time of the invention to modify the system of Kuhn to implement delimiters between the data as taught by Kanevsky, for implementation in speech recognition systems for inflected languages which have very large vocabularies.

Regarding claim 8, Kuhn discloses decision trees are used to store a series of yes-no questions that can be used to convert spelled word letter sequences into pronunciations (abstract; col. 2, lines 10-23), for use in a speech recognition system to allow the user to add additional words to the recognition dictionary (col. 1, lines 49-55), which reads on "alphabetized text and corresponding phones."

Kuhn and Das do not specifically teach, "overlapping characters with previous entry are prefix delta encoded".

At col. 3, lines 37-43, Kanevsky discloses that for a given stem S, the decoder produces a list of possible endings E1, E2, E3, . . . , which can be used as the next "word" and that the table of stems and allowed endings contains lists of all endings that can follow a given stem, which reads on "overlapping characters with previous entry are prefix delta encoded", since instead of storing entire words in the dictionary/vocabulary, the system uses the a shortcut notation of maintaining the possible endings associated with a given stem for concatenation to form the several possible words.

Therefore, it would have been obvious to one of ordinary skill at the time of the invention to modify the system of Kuhn to implement prefix encoding as taught by Kanevsky, for implementation in speech recognition systems for inflected languages, which have very large vocabularies.

(11) Response to Argument

Applicant's arguments filed April 4, 2003 have been fully considered but they are not persuasive.

Regarding claims 1 and 10, at page 6 of the Brief Applicant argues "the claimed invention does not depend on the creation of smaller sub-vocabulary" and that Applicant's "prefix does not have to have any pronunciation significance or morphological significance." In response, the Examiner argues that although Kanevsky discloses other features to which applicant does not implement, the word model of Kanevsky provides support for a pronunciation dictionary regardless of how the dictionary is partitioned. Further, the teachings of Kanevsky reads on applicant's claim language of a "prefix."

At page 6 of the Brief, applicant further argues that a pronunciation dictionary is not probabilistic and that for each entry in the dictionary, there is one and only one sequence of phones to describe its pronunciation. In response, the Examiner argues that there is no need for a single pronunciation of a word, because the teachings of Kanevsky allows for choosing one pronunciation from several to compensate for varying dialects.

At page 7 of the Brief, applicant argues Kanevsky does not solve applicant's problem of reducing the size of the lookup table. Applicant also argues that " a rule set can predict 70% of the phones correctly, the dictionary need only encode the other 30% of the prediction error information. This prediction error information has much lower entropy, and thus requires much less space to store. This is not taught anywhere in Kanevsky." In response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that

the features upon which applicant relies (i.e., a rule set can predict 70% of the phones correctly, the dictionary need only encode the other 30% of the prediction error information. This prediction error information has much lower entropy, and thus requires much less space to store) are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

At page 7 of the Brief, applicant argues "no prior art teaches or suggest the combination of a rule set with an alphabetized text and corresponding phones and or overlapping characters with previous entry are prefix delta encoded."

In response to applicant's arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986). In response, the Examiner argues that Kanevsky teaches a system which comprises a large corpus of text, and a vocabulary, such as a pronunciation dictionary, in which words are split into stems and endings in accordance with dictionary information, and for each word in the dictionary. The vocabulary is used to create sub-vocabularies of components that comprise stems, endings and prefixes. The textual data and the vocabulary components are used to generate language model statistics, that comprise various sets of statistics: such as stem statistics (trigrams, bigrams, unigrams of a stream of stems that are produced from a stream of words by cutting prefixes and endings); stem/ending and/or prefix/stem/ending n-grams. Further, Kuhn discloses a method for generating spelling-to pronunciation decision tree, which decision trees are used to store a series

of yes-no questions (which reads on the "rule set") that can be used to convert spelled word letter sequences into pronunciations (abstract), for use in a speech recognition system to allow the user to add additional words to the recognition dictionary which reads on "convert text to phones for text not in the dictionary."

Thus, the combination of Kanevsky and Kuhn and would provide for a vocabulary or dictionary comprising alphabetized text and corresponding phones (as taught by Kanevsky); and overlapping characters with previous entry are prefix delta encoded (as taught by Kanevsky); further allowing for generating spelling to pronunciation means that is used to convert spelled word letter sequences into pronunciations (as provided by Kuhn).

At pages 7 and 8 applicant argues the combination is not obvious and "there is nothing in the references to suggest the combination." In response to applicant's argument that there is no suggestion to combine the references, the examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988) and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In this case, Kuhn specifically teaches that implementation of the spelling-to-pronunciation decision tree allows the user to add words to the recognition dictionary without having to understand the nuances of building a phonetic transcription (col. 1, lines 49-55), and thus, one of ordinary skill would recognize the advantages of the user-friendliness with which new words could be added to the system.

Regarding claims 2-4, 9, and 11-13, at page 8 of the Brief, applicant argues "claim 2 is therefore deemed allowable for at least the same reasons as claim 1." Applicant also argues "applicant's invention is for a different purpose" and that "applicants generate a dictionary accurate pronunciation using much smaller memory than that required by a standard dictionary." In response, the Examiner argues the combination of Kanevsky and Kuhn teaches everything as claimed in claim 1, as indicated in the rejection and arguments above.

At page 9 of the Brief, applicant argues "the Das reference does not teach or suggest error coding even on text coding, not to mention pronunciation encoding. Clearly the Das reference does not teach or suggest error coding on pronunciation encoding." In response to applicant's arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.,* 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986). In this instance, Kanevsky was cited as teaching a pronunciation vocabulary or dictionary comprising alphabetized text and corresponding phones as well as overlapping characters with previous entry are prefix delta encoded, and Das was cited as teaching the error coding. Thus, the combination of the teachings of Kanevsky and Das provide support error coding on pronunciation encoding.

In response to applicant's argument that there is no suggestion to combine the references, the examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5

USPQ2d 1596 (Fed. Cir. 1988) and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In this case, it was well known to utilize an error signal as an efficient means for implementing a coding scheme.

Regarding claim 5, at page 10 of the Brief, applicant argues "none of the references teach or suggest what is claimed in claim 5." The Examiner argues, Kuhn was cited as teaching a pronunciation vocabulary or dictionary comprising a rule set to convert text to phone for text not in the dictionary, and Das was cited as teaching the error coding. Thus, the combination of the teachings of Kuhn and Das would provide for a pronunciation vocabulary or dictionary comprising a rule set to convert text to phone for text not in the dictionary (as taught by Kuhn), such that entries different from the rule set are implemented via a form of error encoding (as provided by Das).

At page 10 of the Brief, applicant argues "applicant's invention is for a different purpose, we want to generate dictionary accurate pronunciation using much smaller memory that that required by a conventional text-to-phone dictionary." In response to applicant's argument that "applicant's invention is for a different purpose, we want to generate dictionary accurate pronunciation using much smaller memory that that required by a conventional text-to-phone dictionary", the fact that applicant has recognized another advantage which would flow naturally from following the suggestion of the prior art cannot be the basis for patentability when the differences would otherwise be obvious. See *Ex parte Obiaya*, 227 USPQ 58, 60 (Bd. Pat. App. & Inter. 1985).

At page 11 of the Brief, Applicant argues "it is not seen where Das in any way teaches or suggests applicant's claimed pronunciation dictionary comprising an error encoded set for those

entries different from the rule set wherein the entry only contains the difference with the rule prediction." The Examiner argues, in response to applicant's arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986). In this instance, Kuhn was cited as teaching a pronunciation vocabulary or dictionary comprising a rule set to convert text to phone for text not in the dictionary, and Das was cited as teaching the error coding. Thus, the combination of the teachings of Kuhn and Das would provide for a pronunciation vocabulary or dictionary comprising a rule set to convert text to phone for text not in the dictionary (as taught by Kuhn), such that entries different from the rule set are implemented via a form of error encoding (as provided by Das).

At pages 11 and 12 of the Brief, applicant also argues that there is no suggestion in Das or Kuhn to combine the references. In response to applicant's argument that there is no suggestion to combine the references, the examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988) and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In this case, it was well known to utilize an error signal as an efficient means for implementing a coding scheme.

Regarding claims 6-8, at page 12 of the Brief, applicant argues "Kanevsky does not teach or suggest the claimed rule set or the error encoded set." Applicant also argues "nothing in

these three references suggest the error encoded set to be prefix delta encoded." Applicant further argues the combination of an alphabetized text and corresponding phones; and overlapping characters with previous entry are prefix delta encoded and that the combination is not taught or suggested in Kuhn, Das, or Kanevsky. In response to applicant's arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.,* 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986). In this instance, the Examiner argues that Kuhn was cited as disclosing a method for generating spelling-to pronunciation decision tree, which decision trees are used to store a series of yes-no questions (which reads on the "rule set") that can be used to convert spelled word letter sequences into pronunciations, for use in a speech recognition system to allow the user to add additional words to the recognition dictionary which reads on "convert text to phones for text not in the dictionary." Further, Das teaches a system for vector quantization, which utilizes error vectors in the coding scheme and teaches that the difference between a target vector and an input vector forms an error vector, which represents the distortion between an input and output of the coding system, and encodes differences in pronunciations however obtained. Kanevsky was cited as teaching a pronunciation vocabulary or dictionary comprising alphabetized text and corresponding phones as well as overlapping characters with previous entry are prefix delta encoded.

Thus, the combination of Kanevsky, Kuhn and Das would provide for a vocabulary or dictionary comprising alphabetized text and corresponding phones (as taught by Kanevsky); and overlapping characters with previous entry are prefix delta encoded (as taught by Kanevsky);

further allowing for generating spelling to pronunciation means that is used to convert spelled word letter sequences into pronunciations (as provided by Kuhn) such that entries different from the rule set are implemented via a form of error encoding (as provided by Das).

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

Angela Armstrong

Angela A. Armstrong
Examiner
Art Unit 2654

AAA
June 16, 2003

Conferees

Tālivaldis I. Šmits, PhD
Primary Examiner
Art Unit 2654

for Marsha D. Banks-Harold
Supervisory Patent Examiner
Art Unit 2654

DORIS H. TO
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2600

TEXAS INSTRUMENTS INCORPORATED
P O BOX 655474, M/S 3999
DALLAS, TX 75265